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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/661,547 09/14/00 HARPER JR

D BERG-2456

EXAMINER

MCCAMEY, A

ART UNIT

PAPER NUMBER

2833

DATE MAILED:

03/09/01

THOMAS E WATSON
WOODCOCK WASHBURN KURTZ MACKIEWICZ & NOR
ONE LIBERTY PLACE-46TH FLOOR
PHILADELPHIA PA 19103

MMC2/0309

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/661,547

Applicant(s)

HARPER JR, DONALD K

Examiner

Ann M McCamey

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 18) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 14 is objected to because of the following informalities: the claim must end with a period. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the an array" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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5. Claims 1-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Consoli et al. (US 6,183,268).

Regarding claim 1, Consoli et al. discloses a first connector half 14 having a first array of mating elements, a second connector half 12, the second connector half having a second array of mating elements; whereby mating the first and second connector electrically connects the component to the substrate.

Regarding claim 2, Consoli et al. discloses the first connector half is adapted for connection to the substrate via an array of ball type contact portions 66 on the first connector half that form an electrical connection with an array of electrical contacts on the substrate by way of solder reflow.

Regarding claim 3, Consoli et al. discloses the second connector half connects to the component via an array of ball type contact portions 40 on the component that form an electrical connection with an array of electrical contacts 34 on the second connector half by way of solder reflow.

Regarding claim 4, Consoli et al. discloses an array of electrical contacts on the substrate corresponds electrically to an array of ball type contact portions 66 on the first connector half.

Regarding claim 5, Consoli et al. discloses an array of ball type contact regions 40 on the first connector half corresponds electrically to the first array of mating elements.

Regarding claim 6, Consoli et al. discloses the first array of mating elements corresponds electrically to the second array of mating elements.

Regarding claim 7, Consoli et al. discloses the second array of mating elements corresponds electrically to an array of electrical contacts 34 on the second connector half.

Regarding claim 8, Consoli et al. discloses an array of electrical contacts 34 on the second connector half corresponds electrically to an array of ball type contact portions 66 on the component.

Regarding claims 9 and 10, Consoli et al. discloses an array of ball type contact portions 66 and an array of ball type contact portions 40 on the component is one of a column grid array, ceramic ball grid array, tab ball grid array and plastic ball grid array.

Regarding claim 11, Consoli et al. discloses a mating element 58 of the first array of mating elements has dual elongations for receiving a single elongation from a mating element of the second array of mating elements.

Regarding claim 12, Consoli et al. discloses the first array of mating elements and first array of ball type contact portion are on opposing sides of the first connector half.

Regarding claim 13, Consoli et al. discloses the second array of mating elements and first array of ball type contact portion are on opposing sides of the second connector half.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Consoli et al.

Regarding claims 14, 21 and 24, Consoli et al. discloses the invention substantially as claimed but does not disclose an array of ball type contact portions/fusable elements attached to an electrical component. However, Consoli et al. teaches the array of ball type contact portions on the connector with which the electrical component attaches. It would have been obvious to one having ordinary skill in the art to have the array of ball type contacts/fusable elements on the electrical component rather than on the connector, since it is the fact that the ball is *between* the two components that allows the connection and the actual location of the array makes no substantial difference in the operation of the device. It has been held that reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 157.

Regarding claim 15, Consoli et al. discloses the array of mating elements and array of electrical contacts are on opposing sides of the connector half.

Regarding claim 16, Consoli et al. discloses the array of mating elements corresponds electrically to the array of contact portions.

Regarding claim 17, Consoli et al. discloses the array of contact portions corresponds electrically to the array of ball type contact portions.

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Regarding claim 18 and 25, Consoli et al. discloses the array of ball type contact portions is one of a column grid array, ceramic ball grid array, tab ball grid array and plastic ball grid array.

Regarding claim 19, Consoli et al. discloses a mating element 58 of the array of mating elements has dual elongations for receiving a single elongation from a mating element of another connector half.

Regarding claim 20, Consoli et al. discloses a mating element 34 of the array of mating elements has a single elongation for insertion between dual elongation of a mating element of another connector half.

Regarding claim 22, Consoli et al. discloses the fusing step directly fuses the fusible elements to the contacts on the second connector (Figure 6; Column 3, Line 7-8).

Regarding claim 23, Consoli et al. discloses the second connector including a housing 16 having a recess 30 in which a tail of each of the contacts reside, and fusing step partially occurs in the recess.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Grabbe (US 5,669,774), Frankeny et al. (US 5,691,041), Taylor (US 5,746,608), Lemke et al. (US 6,042,389), Hilton (US 6,069,482), Lemke et al. (6,093,042) disclose electrical connectors with solder/socket combinations.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ann M McCamey whose telephone number is (703) 305-3422. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AMM
March 1, 2001

P. Bradley